Passaic River Investigation Update

212856

PDT Briefing
November 2, 2005

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Outline

- Sediment Investigation
  - Geophysical Investigation
  - High Resolution Core Site Selection
  - Core Processing
- Water Column Investigation
  - SPMDs
  - Large volume filtration
  - High flow event
- What's Next

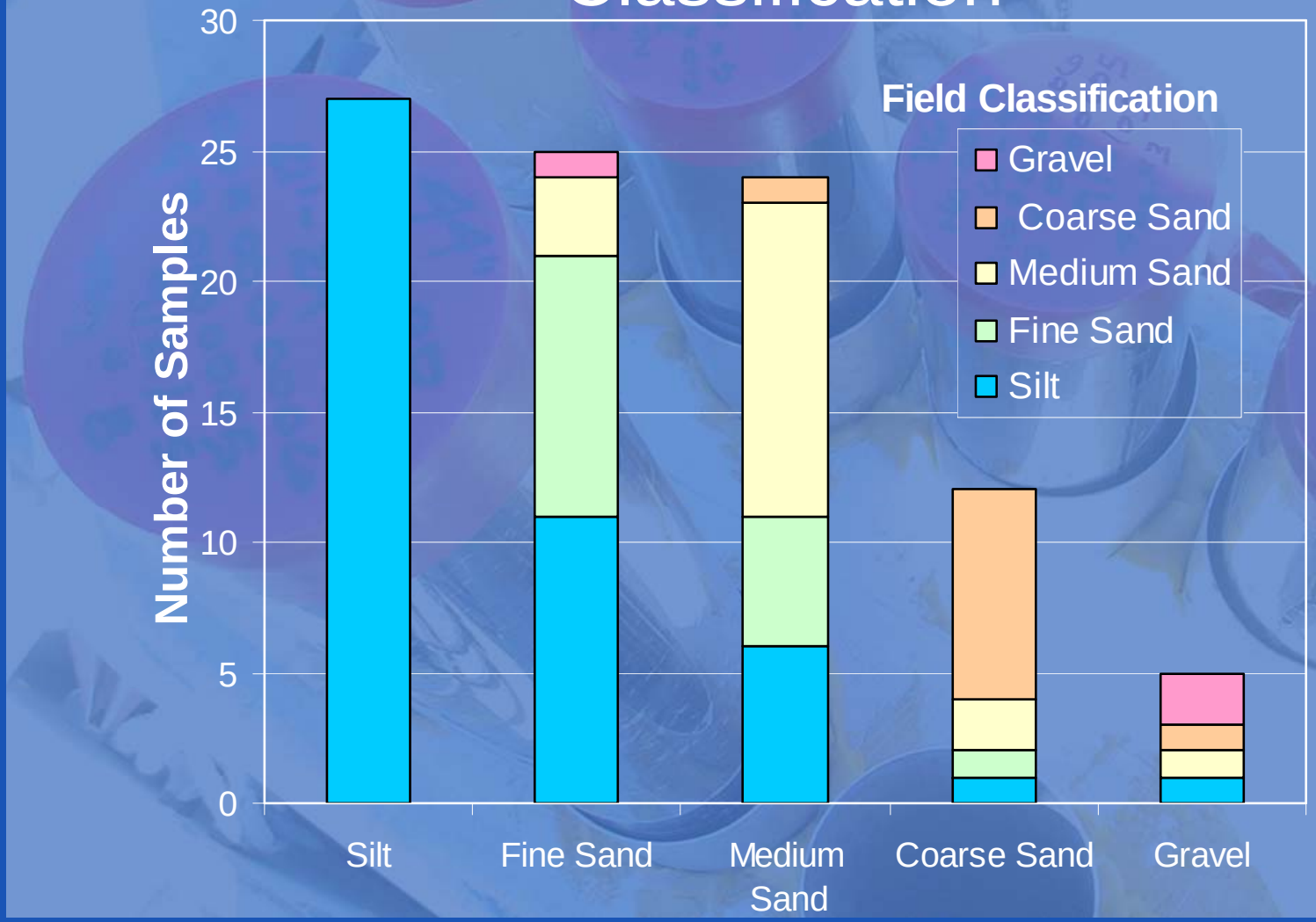
Sediment Investigation

- Geophysical Results
  - Sediment Texture Analysis
  - Geophysical Mapping
  - Extent of Sediment Types

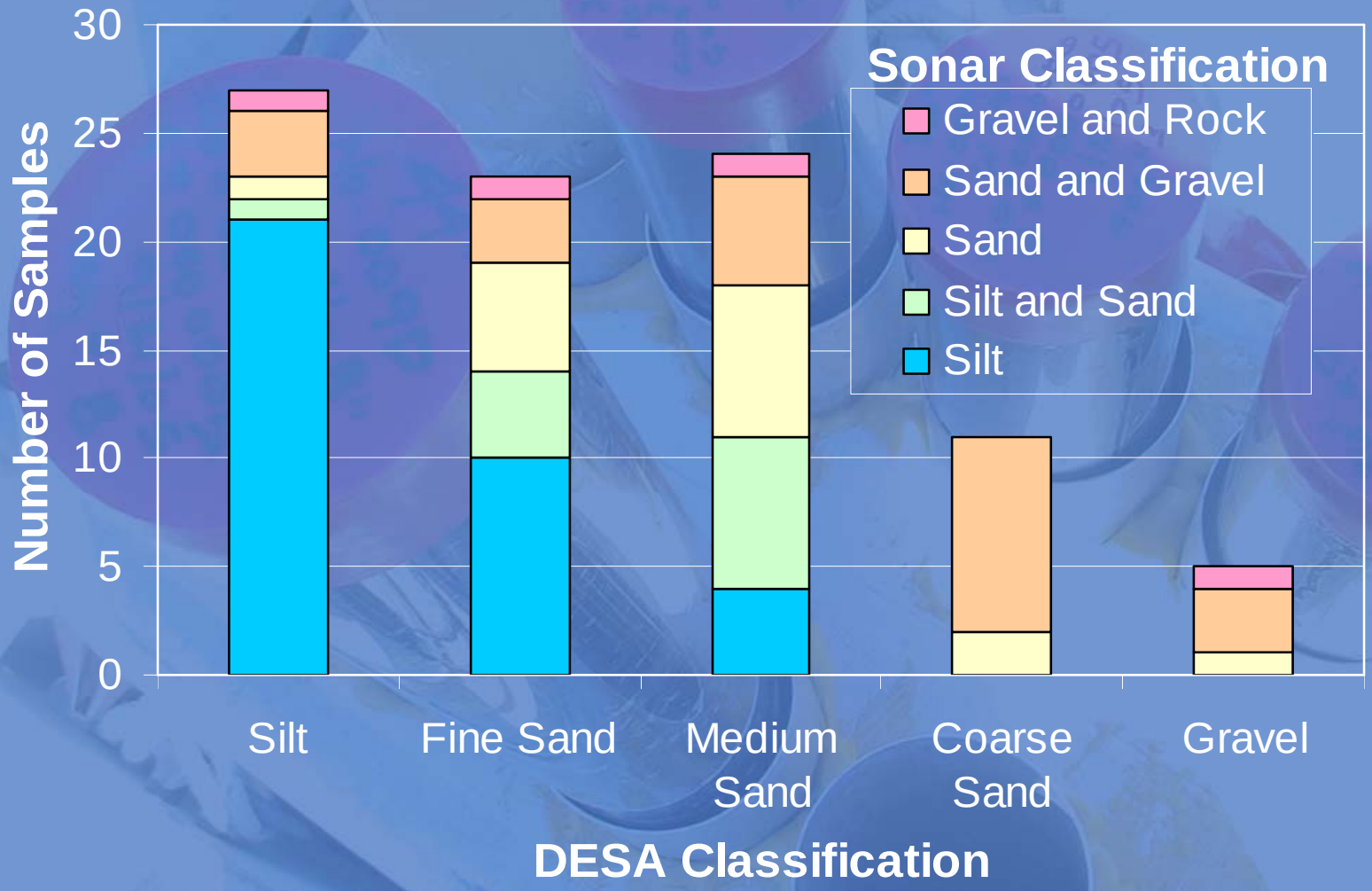
Sediment Texture Analyses

- Grain size distribution vs field classification
- Grain size distribution vs Side Scan Sonar interpretation
- Field classification vs SSS interpretation

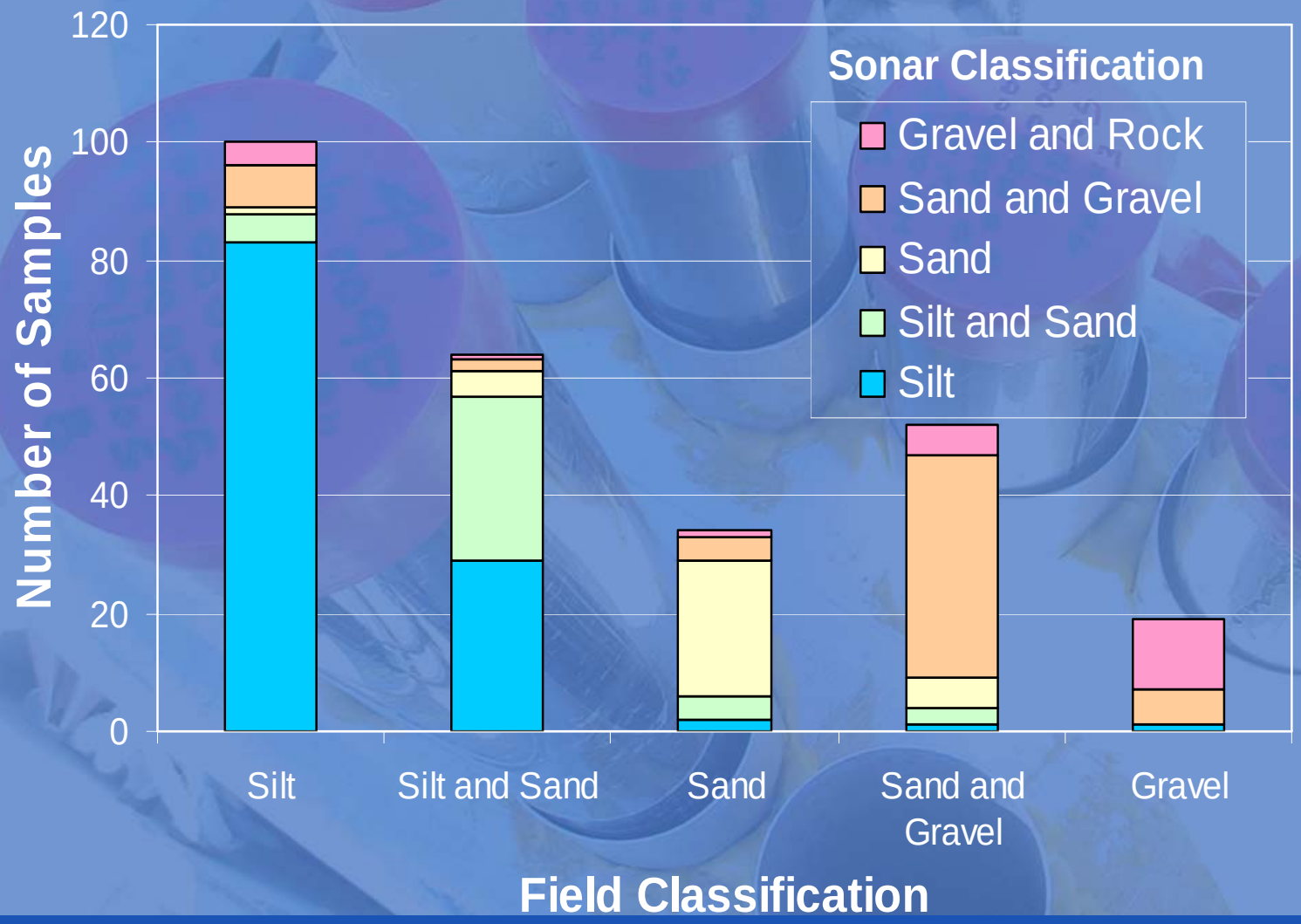
Grain Size Distribution Results vs. Field Classification



Sonar Classifications vs. Grain Size Distribution Results



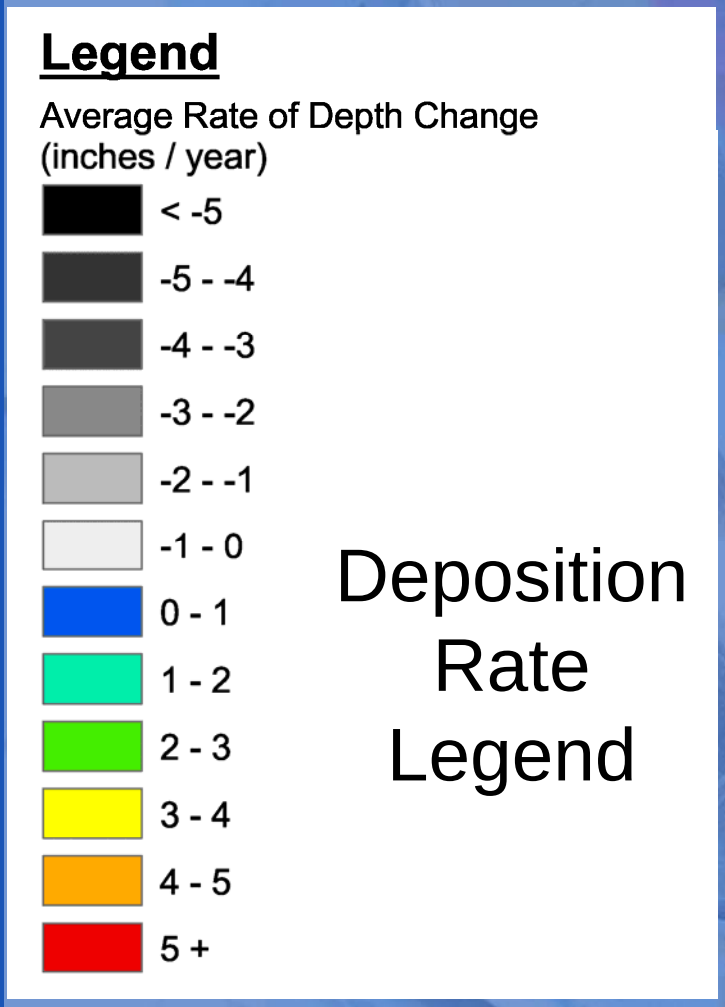
Field Classification vs. Sonar Classification



Side Scan Sonar Observations

- Preliminary sediment assignments agree well
  - About 70 percent accuracy
  - Probably 3 or 4 true classes
- SSS maps provide a basis to map fine sediments
- Maps of observations

Comparison of SSS Results and Deposition Rates

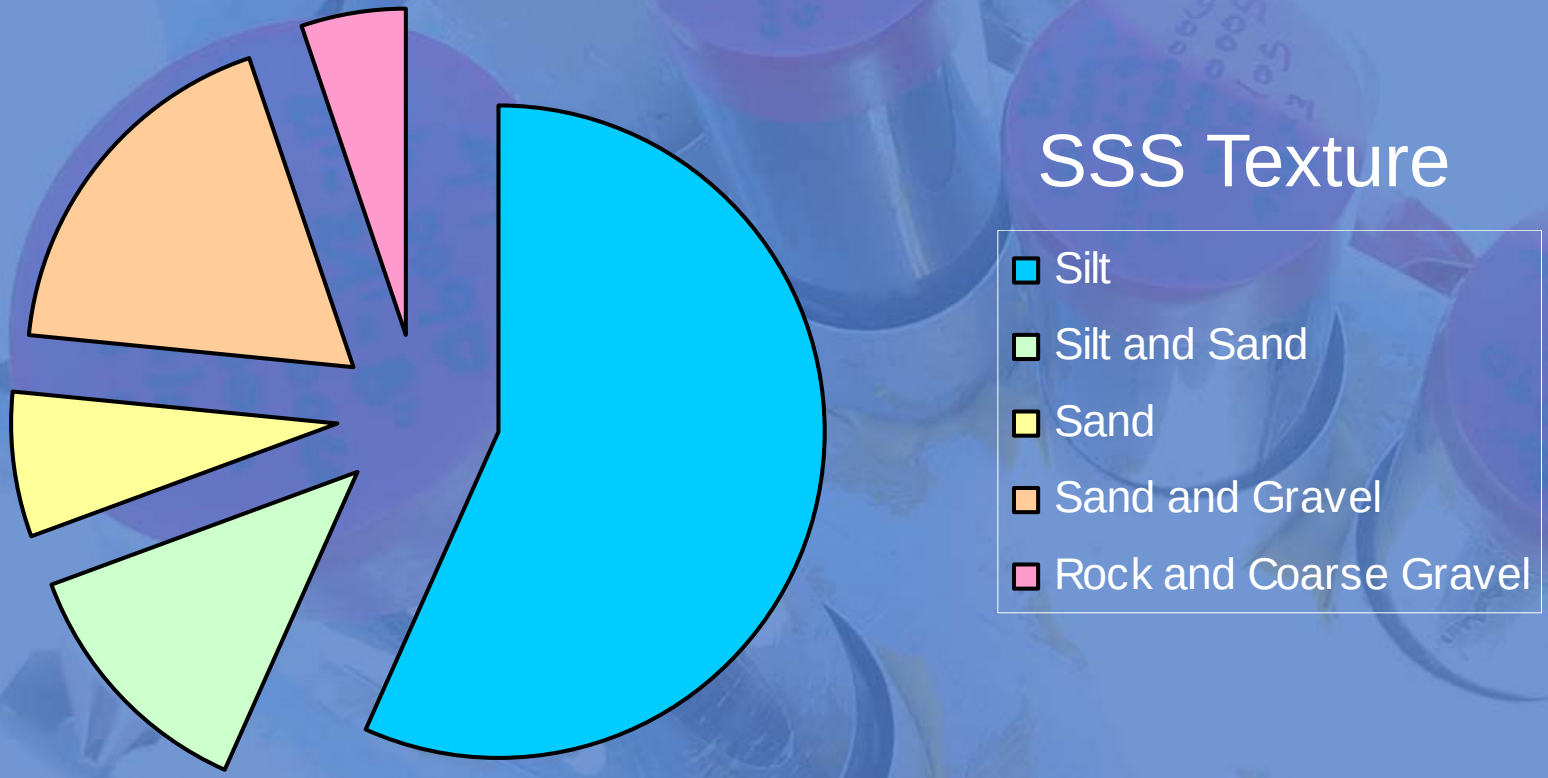


Maps

- RM 2-3 Deposition
- RM 2-3 Sediment Texture

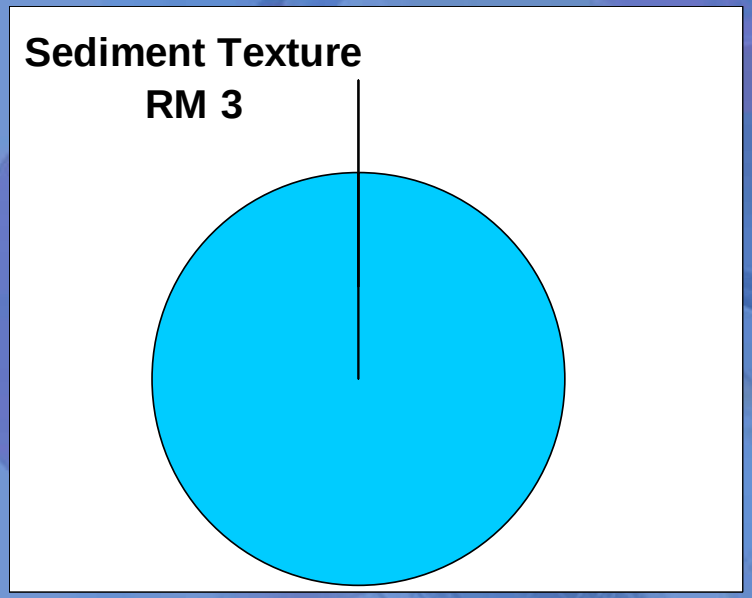
- RM 12-13 Deposition
- RM 12-13 Sediment Texture

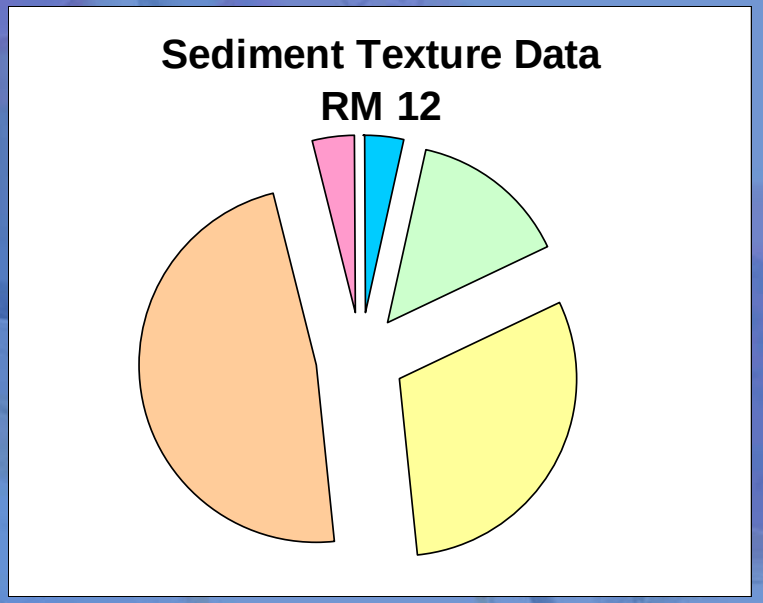
River Surface Textures
RM 1 -16.5



Roughly 800 acres of coverage

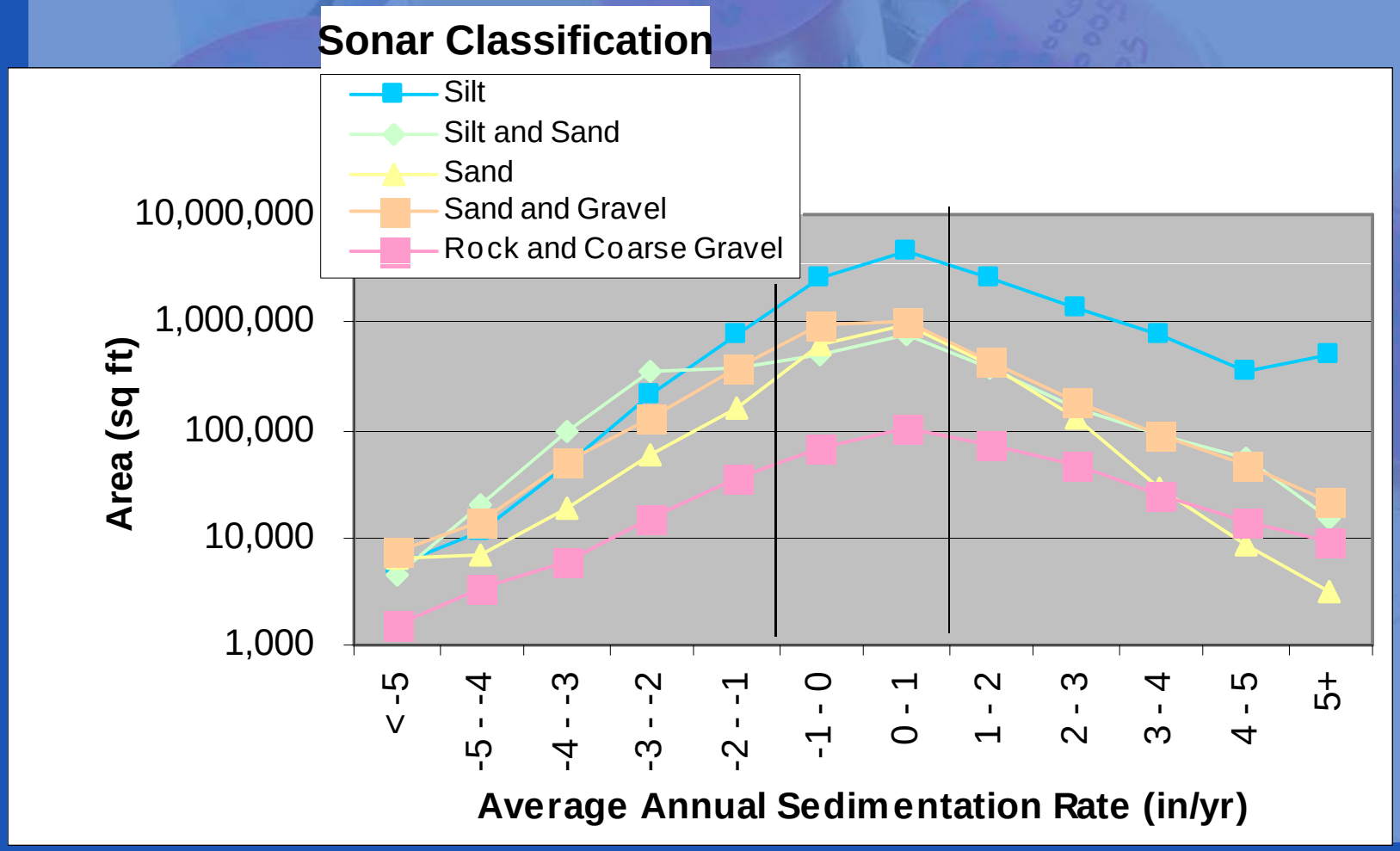
Sediment Texture by River Mile



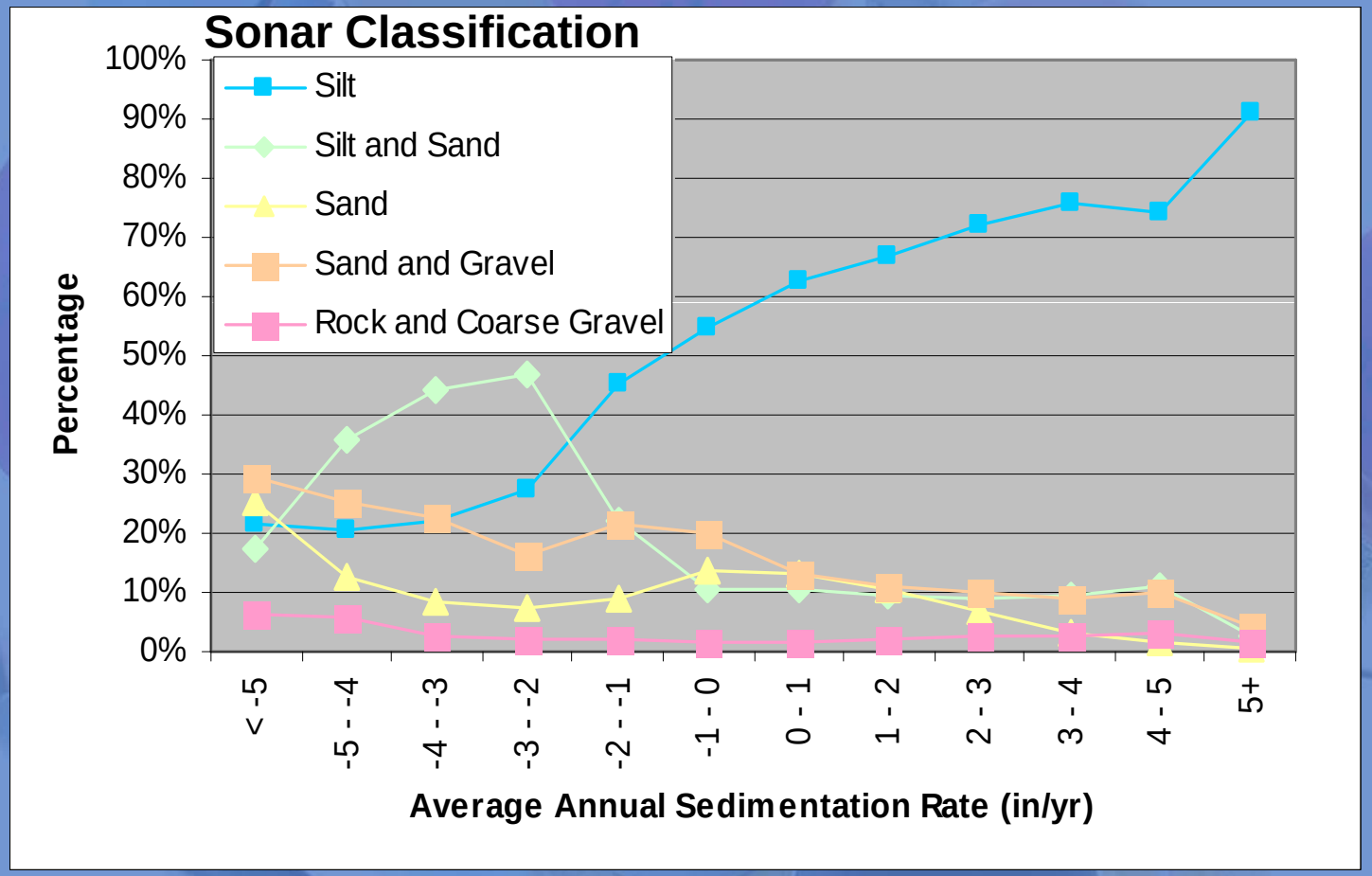


- Silt
- Silt and Sand
- Sand
- Sand and Gravel
- Rock and Coarse Gravel

Deposition Rate vs Texture, by Area



Correlation of Sediment Type and Average Annual Deposition Rate

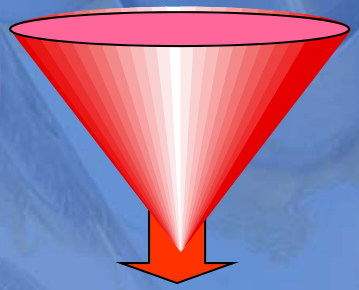


High Resolution Core Site Selection

Sediment Deposition Rate Maps

Sediment Texture Maps

Historical Data



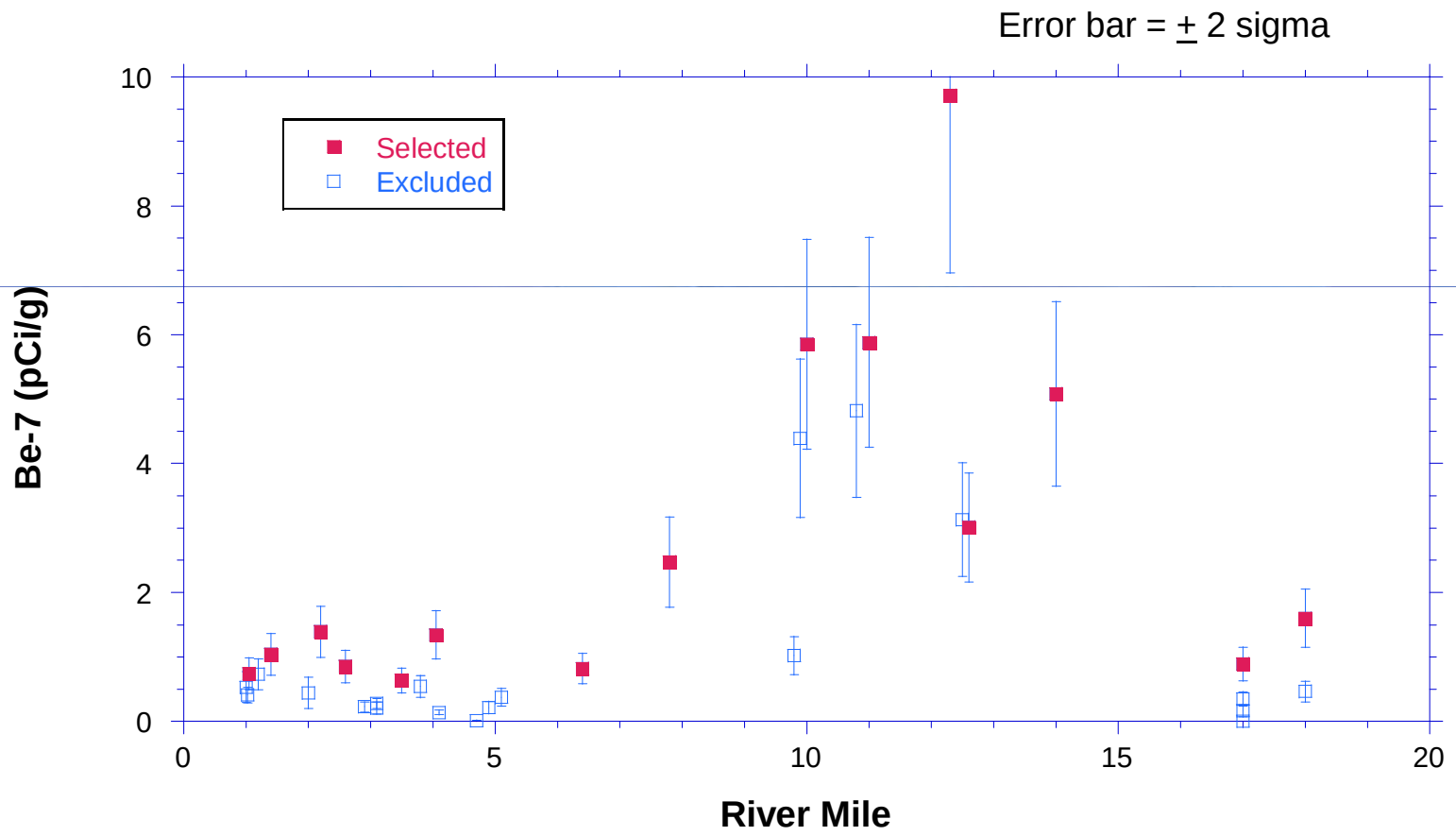
Be-7 Survey Sites

Site Selection

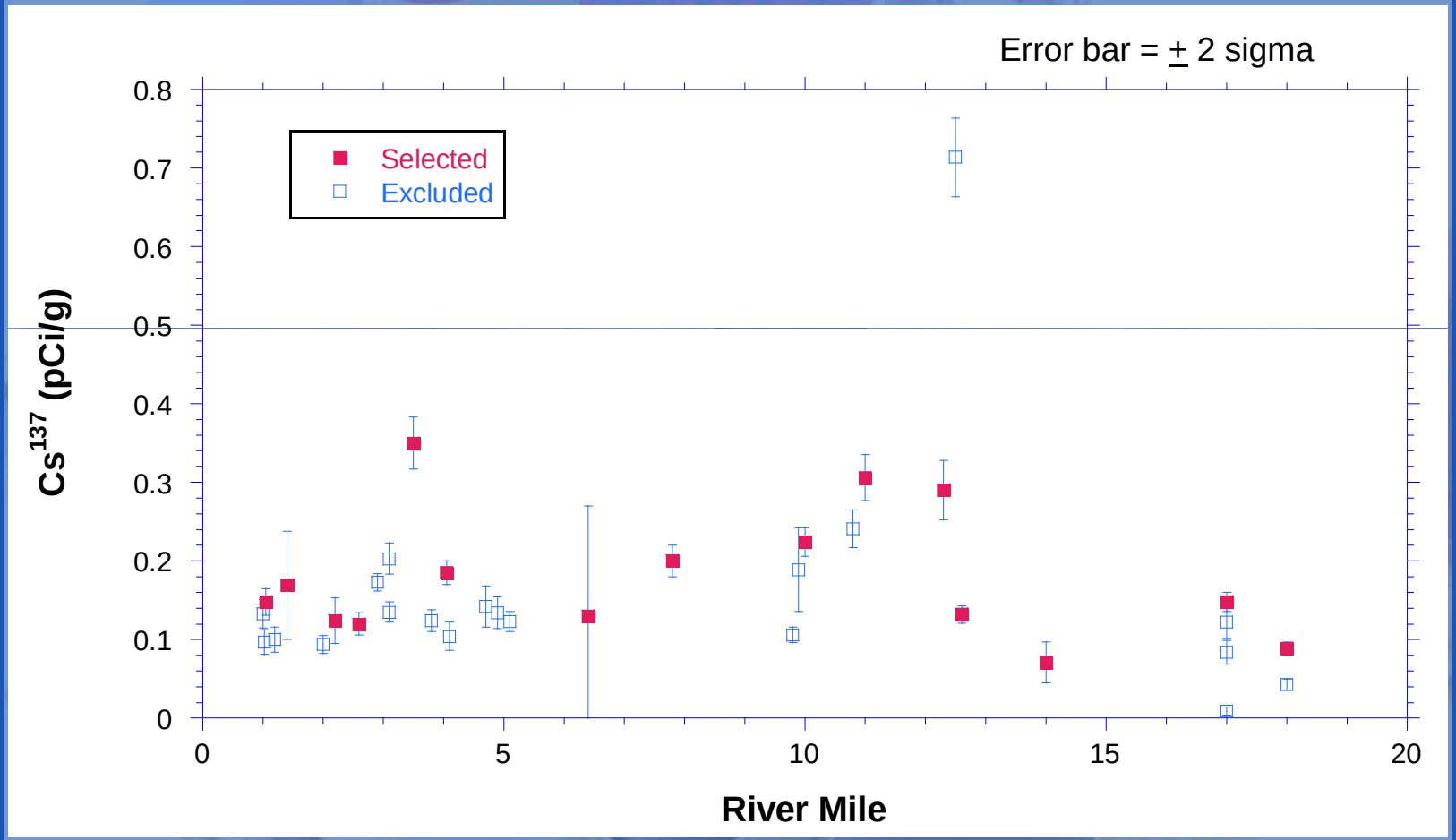
Be-7 Survey

- Survey conducted in early September immediately following receipt of sediment texture maps.
- Achieved 1 week turn-around on samples to enable final core site selection.
- Values as high as 9 pCi/g

Surface Be^7 vs River Mile



Surface Cs^{137} vs River Mile



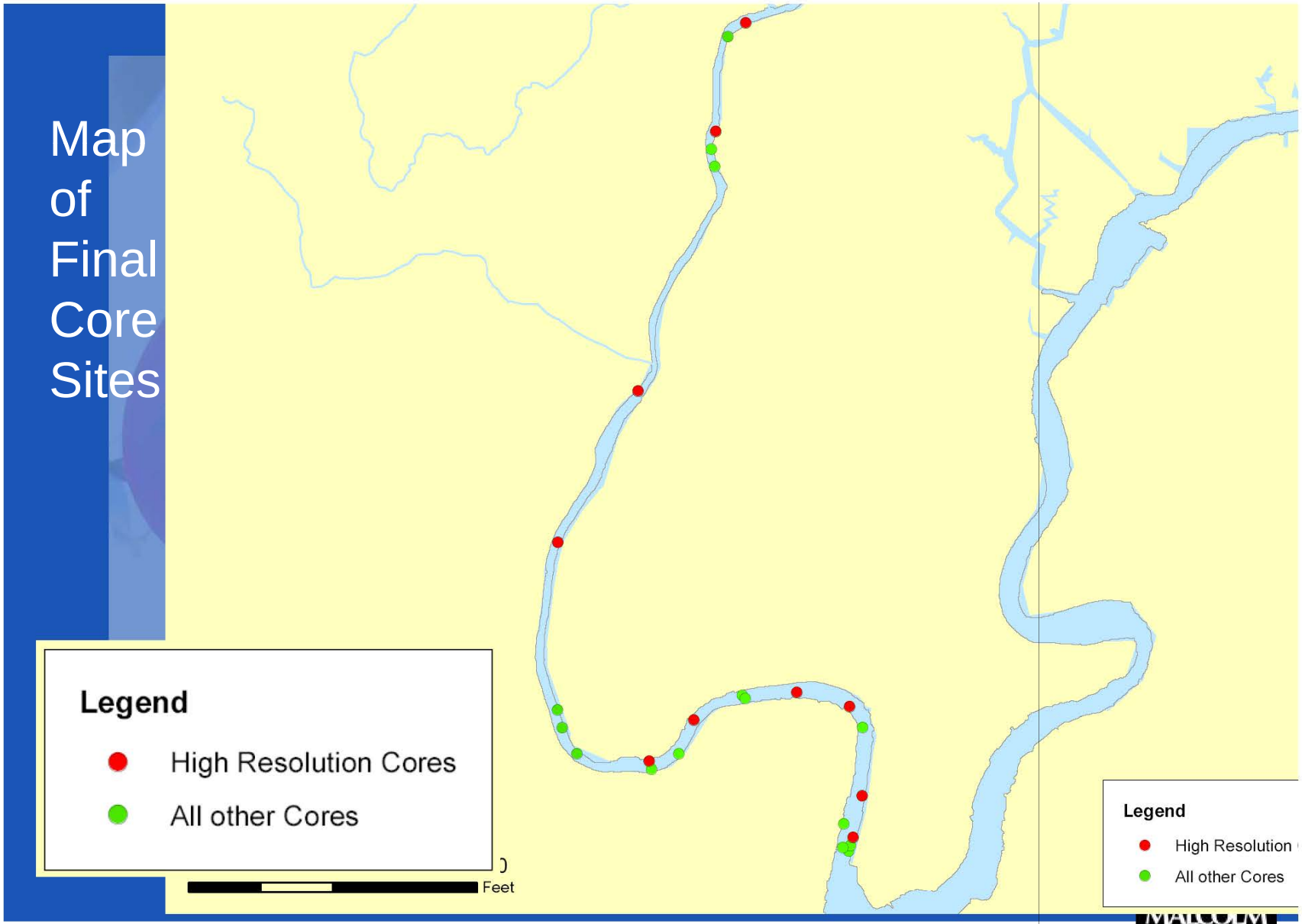
Maps

- Sediment Deposition Rate + Be^7
- Sediment Texture + Be^7

High Resolution Core Site Selection

- Be7-bearing fine sediment identified in many locations
- Core sites available every 2 miles or so to RM 12.
  - Nothing available between RM 12 and 17
- 15 core sites planned from baseline area to Newark Bay entrance.

Map of Final Core Sites



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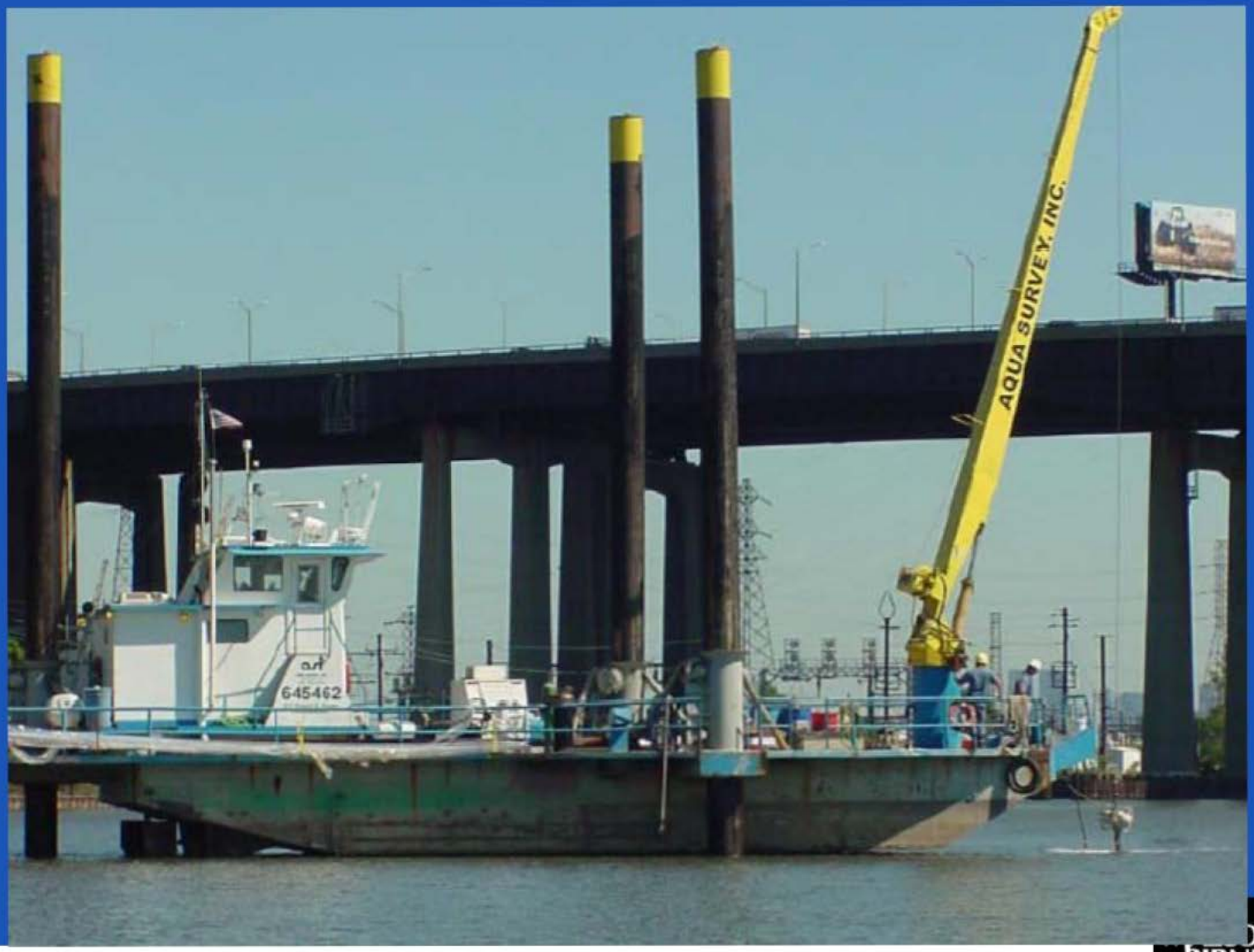
High Resolution Core Collection

- Obtained 3 to 4 cores per day
- 4 to 5 cores per location
- 1 to 2 cores for sectioning
- Processed 44 to 88 sections per day
- Processed, labeled, sealed, recorded, stored and/or shipped up to **300+** sample jars per day
- 14 cores successfully obtained
- Sample management via radionuclide screening and sample preservation to reduce costs



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R2-0004877

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Semi-Permeable Membrane Devices (SPMD)

- Total of 2 deployments, 8 stations each
  - 4 tributaries
  - 4 main stem stations
- 1st deployment Week of Sept 19th, 2005
- Second deployment in this week.
- Each SPMD canister contains 5 lipid bags to provide enough volume for analysis of : PCB Congeners, Dioxin/furans, PAHs, Pesticides.


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Large Volume Filtration Samples

- Two events, 3 stations per event
  - September
  - November
- Six samples/station
  - Large volume dissolved and suspended matter via Infiltrex
  - Large volume dissolved and suspended matter via TOPS (dissolved sample shipped)
  - Large volume whole water (lab to filter and analyze separate phases)
- September event demonstrated need to filter to 0.5 um


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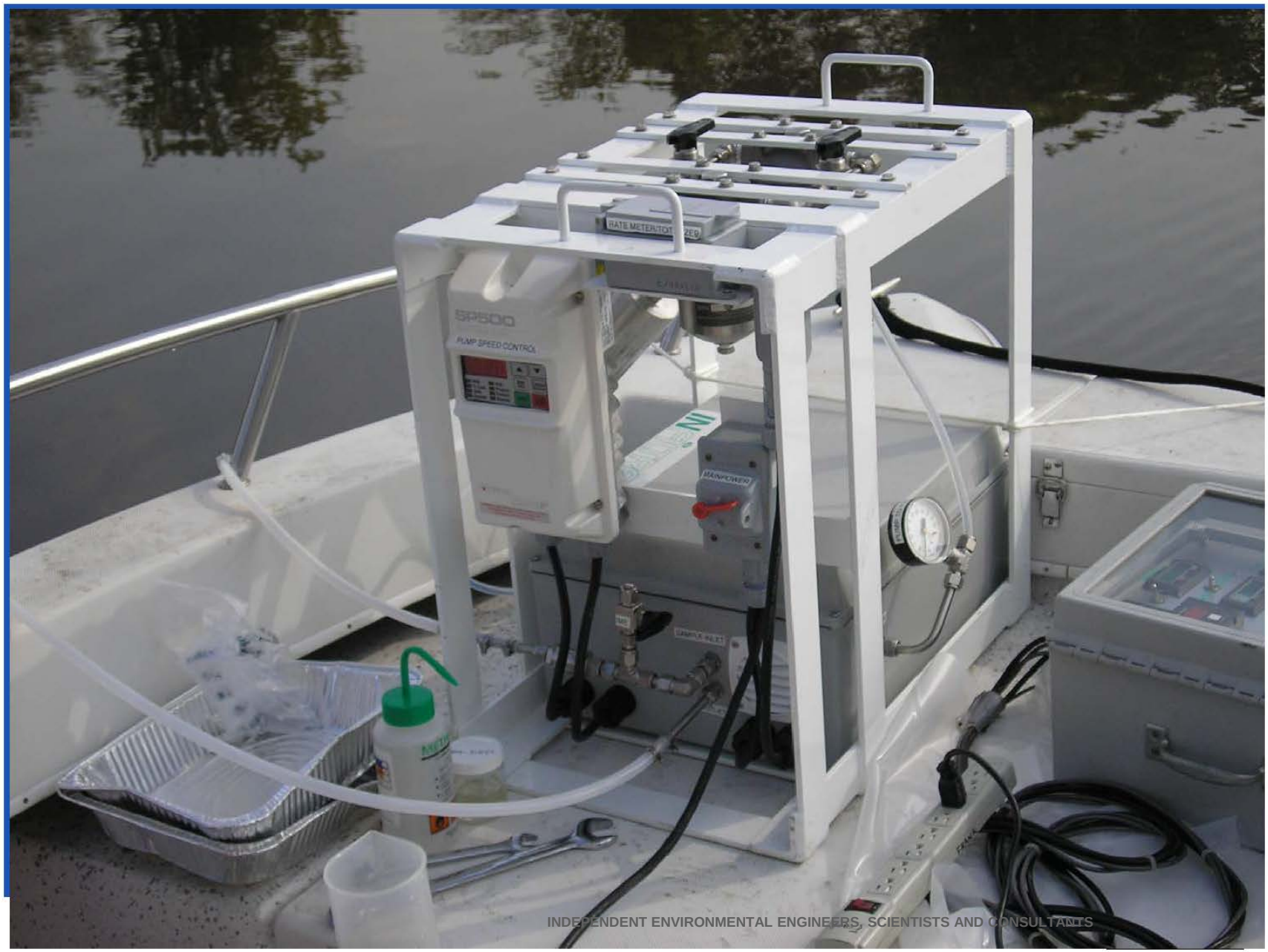
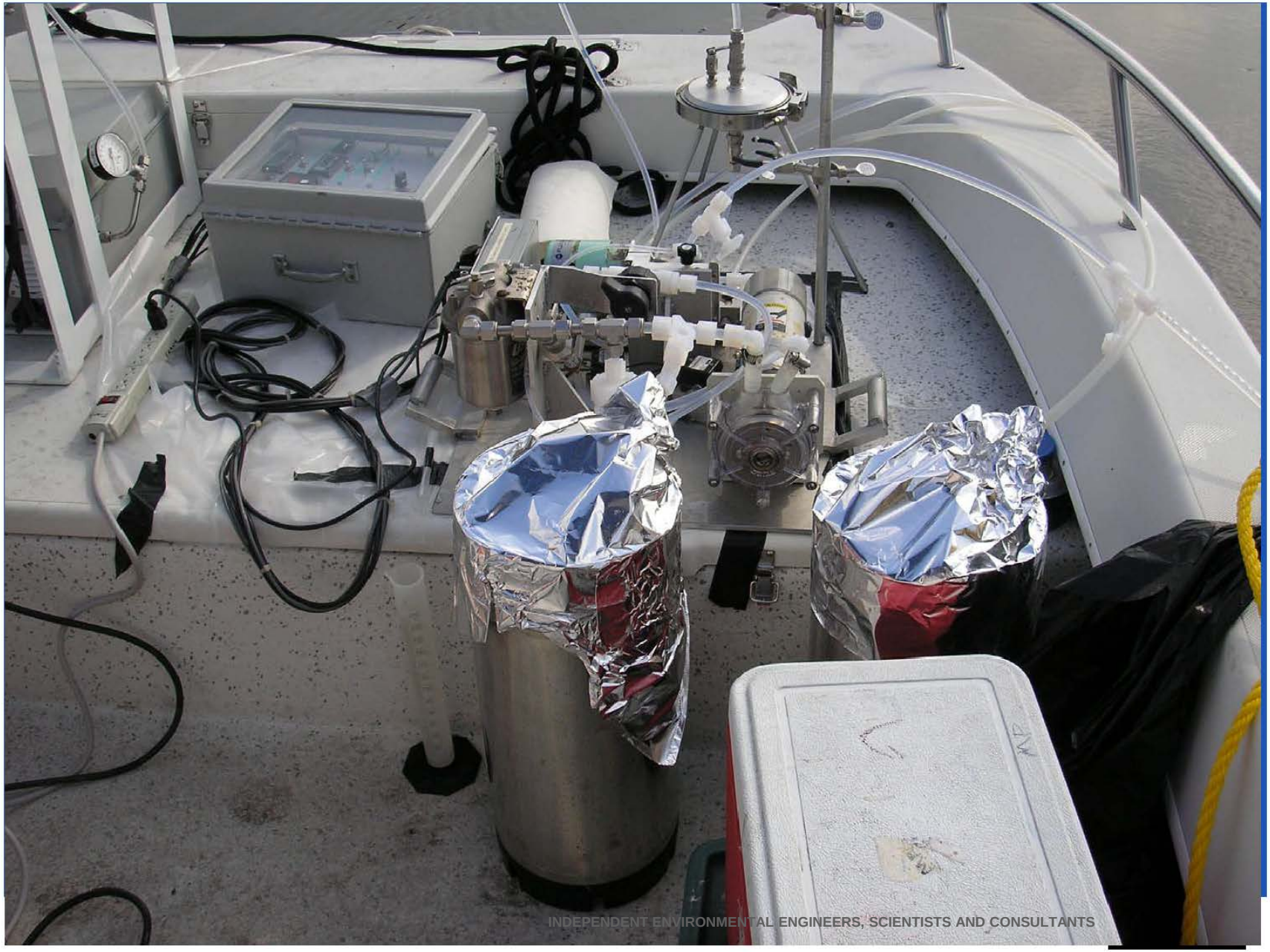

SR500
PUMP SPEED CONTROL
MAIN POWER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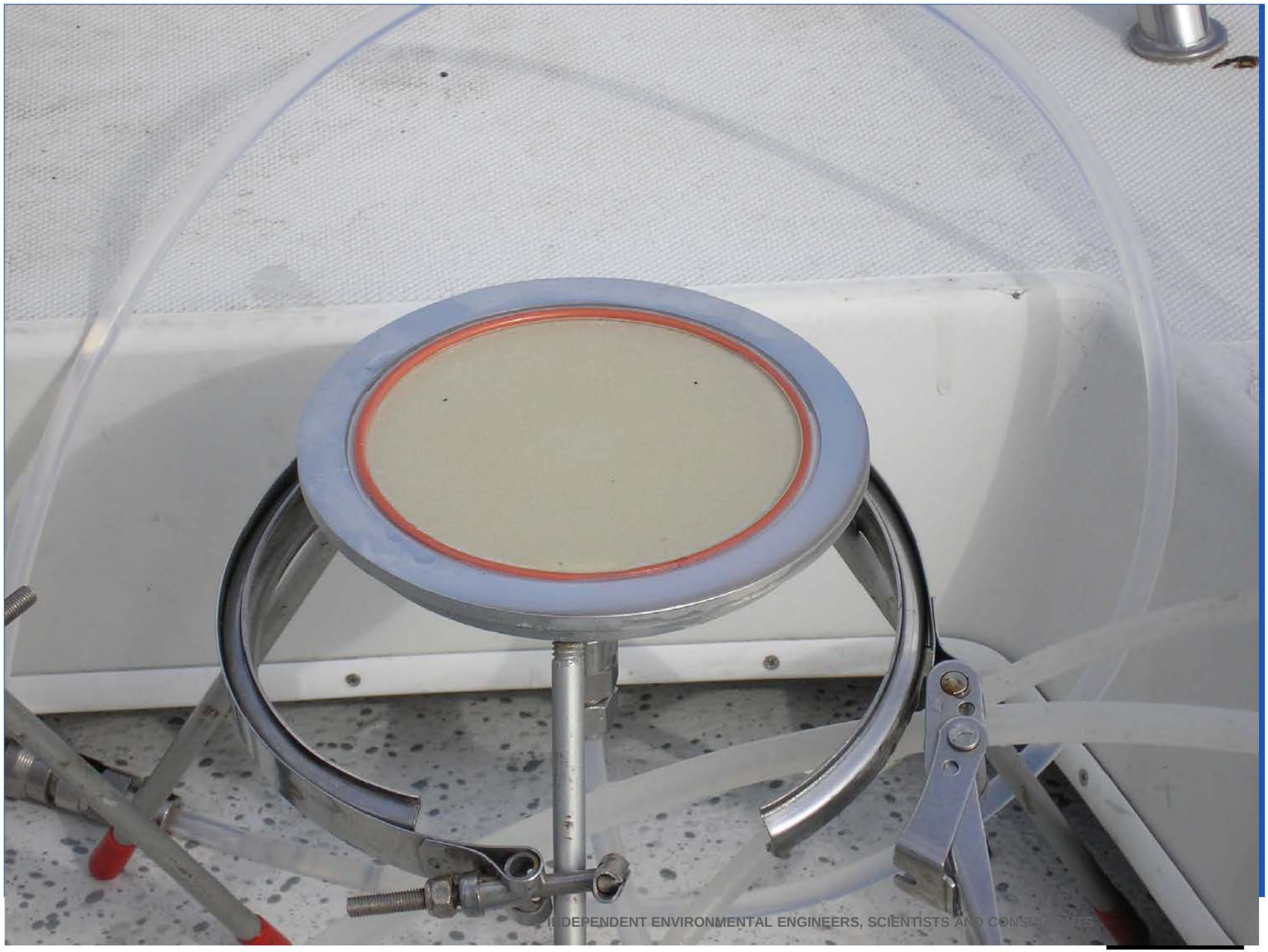
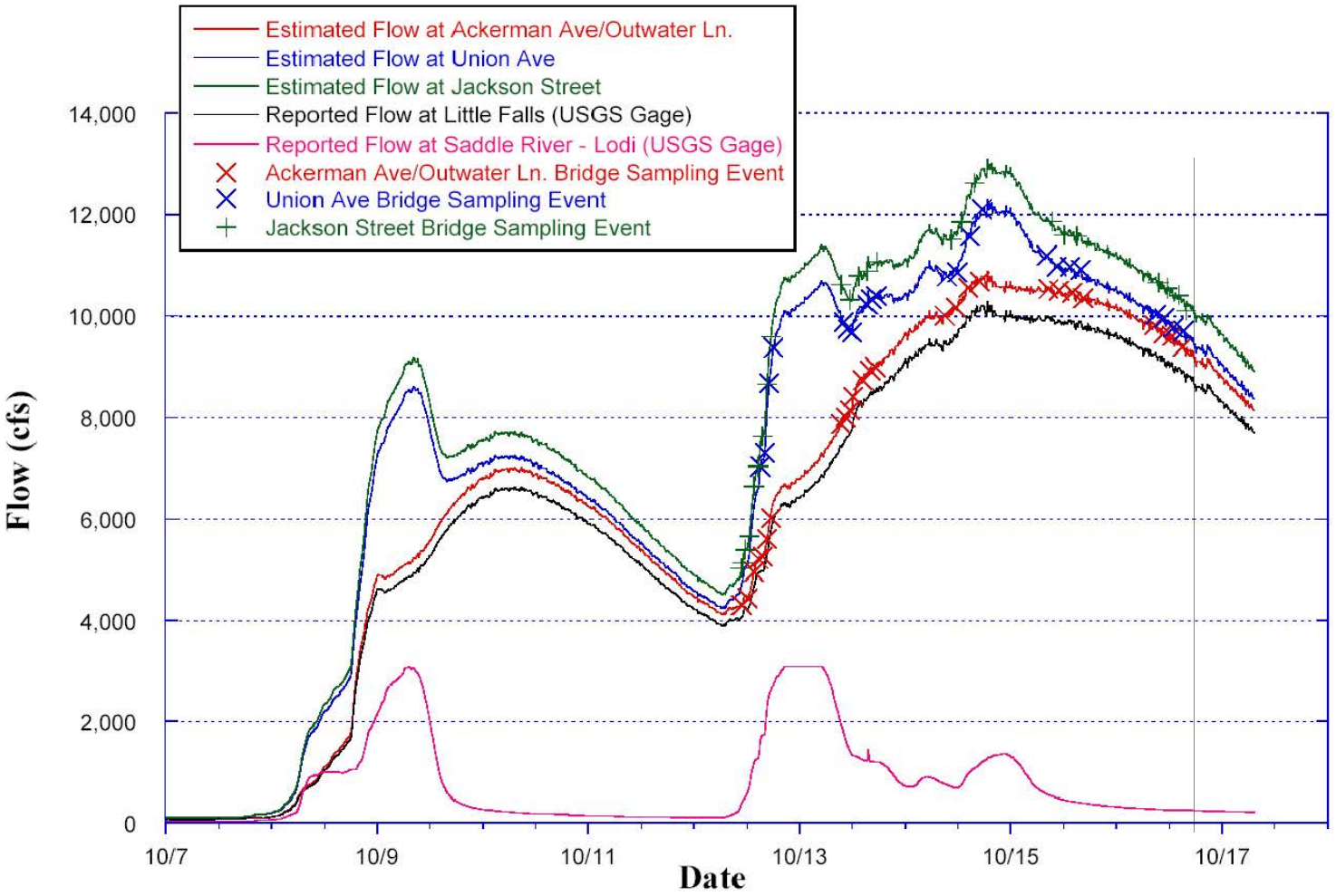


Passaic River High Flow Sampling Event



What's Next

- High Resolution Cores
  - Complete radionuclide analysis/interpretation
  - Identify cores and samples for further analysis.
    - First samples should ship by Dec 1
  - Data available in spring 2006
- SPMDs
  - Samples retrieved this week
  - Second deployment begins this week
  - Data available this winter
- Large Volume Samples
  - Second round later this month
  - Samples from first event undergoing analysis
- Small Volume Composites
  - Sampling event next Tuesday (flood tide)
  - Ebb tide event to be scheduled in next 2 to 4 weeks